

TEACHERS' DIGITAL COMPETENCES: AN OVERVIEW ON TECHNOLOGICAL PERSPECTIVES

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DOI: 10.29300/ling.v7i2.5489

Received: October 21st 2021

Accepted: November 1st 2021

Published: December 23rd 2021

Abstract

The Covid-19 pandemic has shifted educational systems all over the world. As a result, the employment of technology continues to be controversial, and the debate over whether English teachers actually use technology to boost their talents continues. What amount of digital literacy is imparted by their educational experience, and if they adequately equipped with digital capabilities to meet their daily needs is still arguable. Thus, the demand toward the improvement of digital media is linked to digital literacy, which subset of digital competence. Along with same line, teachers need to evaluate their readiness to integrate technology in teaching processes. Today, Universitas Terbuka (UT) provides a critical chance for English teachers to help their students develop their English abilities in complicated scenarios like as the Covid-19 pandemic. Hence, the purpose of this study is to assess the digital skills of English teachers and to describe their preparation for and response to the Covid-19 pandemic. In achieving this study's goals, 8 online tutors and 17 students of Online English Department of UT participated in the study. To obtain the data, questionnaire and interview were used to explore the importance of teacher's readiness in teaching English, particularly on teachers' technological competence. The SWOT Analysis was also be analyzed to capture the strengths, weaknesses, opportunities, and threats on teacher's readiness in digital competencies. The results of this study inform decision-makers at UT and the other similar higher education institutions using similar platforms and who may have the same concerns.

Keywords: Covid-19 pandemic, digital competence, teacher's readiness

INTRODUCTION

The coronavirus Covid-19 pandemic triggered drastic changes towards Indonesia's education system. The teaching placement has to shift entirely from face-to-face classroom to virtual mode. Previously, the teacher has a big opportunity to interact with the students as well as facilitate them to discuss each other. It is also easy for teachers to deliver the learning materials and evaluate the success of the learning objective. However, the current situation limits all the interaction between teacher and student. The stakeholder has to create new

school system management, the teacher has to teach online, and the student has to study at home. In conducting online learning, the teacher needs to master digital skills both in technical as well as pedagogical aspects. The readiness of teachers in teaching online plays important role in supporting the success of learning outcomes. Thus, this paper aims to describe the importance of teacher's readiness in teaching English with sufficient digital competence and identify some aspects of digital competence teachers need to consider after the Covid-19 Pandemic situation.

As digital competence holds an important role, Spante, et.al., (2018) state that digital competences is defined as the general term used to describe or explain the ability (of a citizen, students, a teacher, etc.) to use Information Technology (IT) in a specific context. In addition, it has been analysed that there are some definitions of digital competence by policy and research (Carretero et.al., 2017). The combination of those definitions reveal that digital competence as a degree of knowledge, skills, attitude and literacy in using ICT.

The study of the digital competences is urgently needed because it has been spreading rapidly in the education language. The use of the internet as ICT would give way to a significant improvement in teaching and learning processes. But one of the challenges is how we as a teacher use these materials for teaching and learning purpose. There are some of the challenges teachers may face in utilizing materials from the internet proposed by Weddel (2009). First, Teacher competence is considered important in providing appropriate learning materials. However, the development of technology in learning is not necessarily balanced with the competence of teachers in utilizing technology in learning. Second, teachers need to consider the suitability of the material with the curriculum. They are still tied to the curriculum in teaching and learning activities, meaning that it is a challenge for teachers to choose materials that are in accordance with the demands of the curriculum. Third, websites not intended for learning. The challenge for teachers is how to use these websites as material in teaching and learning.

Correspondingly, Lestyanawati & Arif (2020) conducted a research deal with the problems faced by Indonesian teachers in teaching online during the Covid-19 pandemic. The findings showed that the major problems (41.1%) students experienced limitation in accessing the internet, then students' economically disadvantaged family background comes as the second serious problem in conducting e-learning. About 19,6% shown that teachers experienced difficulties in explaining the material and 1.7% of teachers still have a low ability in accessing technology. Hence, Individuals should be able to employ digital technology to facilitate active citizenship and social inclusion, as well as collaboration and creativity in pursuit of personal, social, or economic goals. The capacity to use, access, filter,

assess, produce, program, and exchange digital content are all considered skills. Teacher as active person should be able to manage and secure their information, content, data, and digital identities, as well as recognize and interact successfully with software, devices, and other digital technologies.

This study will be very useful to evaluate the digital competences owned by teachers in facing new tools and exploiting the technological potentials in a flexible ways (Calvani, et.al., 2008). However, this study adopted the term digital competences which is emphasizes on three dimensions. The first is *technological dimension*. It measures the ability to explore and face problems to new technology in a flexible way. The second is *cognitive dimension* that measures the ability to read, select, interpret, and evaluate data information. And the last is *ethical dimension*. It measures the ability to interact with other individuals constructively and with sense of responsibility using available technologies (Sugilar & Abzeni, 2013).

In a digital world, at the present time, people interact, work, shop, and receive public services online without any bound. Many terms have been used to describe the ability in using technology such as digital skills, e-skills, and digital competences. Moreover, the way to evaluates of digital competence may be divided into two main areas, the first is related to the possibility of acquiring information in a reasonably short time, and the second may require observation to be repeated overtime, in order to pertain a more meaningful assessment. Then in this study, the assessment will be done in a short phase due to all element in the institution is complete and ready to be assessed.

The current trends of technological usage force the global use of the internet in higher education institutions in Indonesia. Hadianito, et.al., (2013) state that the long-term success of internet use highly depends on the teacher's readiness in integrating the application in the teaching-learning process. They further state that there are four main factors of teacher's readiness toward internet use, namely:

1. Attitude readiness. Several e-learning programs do not emphasize the teacher's attitude towards the use of web resources in the classroom. Nevertheless, teachers' attitudes constitute one of the major factors affecting their initial acceptance of computer technology and their future behavior regarding computer usage. Teacher's attitude is also regarded as one of the important factors in adopting the new technology.
2. Motivation readiness. Motivation is one of the major issues toward e-learning.
3. Awareness readiness. To integrate technology into the classroom, the awareness factor should be possessed by teachers. Their awareness as prior knowledge should be assessed before going to the next step of e-learning implementation.

Knowledge readiness. In higher education, teachers or lecturers who had knowledge of computers tended to have positive knowledge of e-learning compared to those lecturers who had no knowledge of computers.

METHOD

This research employed a qualitative research method. This approach is intended to describe and analyze the technological competence which is needed in order to maximize the teacher's readiness in teaching online (Chourishi et al, 2011).

Respondents

The subject in this study refers to tutors who teach under this English department and also the students who were pursuing their education at UT. The whole subjects in the study were the population. Therefore, the population in this research is all educational elements in formal institution associated with distance learning, students and tutor who are involved using the Moodle system precisely. Because of the many individuals in the population involved, sampling is necessary. Sample withdrawal methods used is known as purposive sampling. According to Jameel B et al (2018), the objective of purposive sampling is to seek information-rich cases that can provide individual perspectives and experiences that are relevant to the research questions. So, the subjects of this research were 8 teachers and 17 students who involve in Faculty of teacher and Educator, Indonesia Open University.

Instruments

The instruments employed in this study were questionnaire and interview. The survey handed through surveymonkey.com that reveals the importance of teacher's readiness in teaching English with sufficient digital competence during and after Pandemic Covid-19. Then, there was an interview to gain more detail information from tutors as well as students in relation to the questions stated in the online questionnaires. The interview consisted of six questions in particular and considered as an important digital competence for during and after Pandemic Covid-19 at Universitas Terbuka. The following questions were answered by the participants of the study:

1. To what extend you aware of the existence of new digital devices and online services in distance learning?
2. What is your teaching condition during and after pandemic Covid-19?
3. How do you define relevant search engines and strategies to assess the validity of your information?
4. How do you analyze digital information?

5. How do you use technology to solve digital problems?
6. How do you communicate, collaborate, and participate in virtual teams and networks during and after Covid-19 pandemic?

Procedures

The questionnaire implemented in the study was close-ended questions (Khotari, 2002). This questionnaire was distributed through surveymonkey.com. In the first section, the participants were asked to provide information related to their gender, age, address, study program, and preferred devices used to access the Internet. In the second section, the participants were asked questions about their general use of computing technology and Internet services. Each item of the survey was measured on a common Likert scale, continuum of “strongly disagree” to “strongly agree” (Singh, 2017)

To obtain the supporting data related research issues, the interview was employed. There were 8 teachers from DKI Jakarta, Padang Sidempuan Utara, Sumatera Barat, Banten, Jawa Barat, Kalimantan Utara, Lampung, and Jawa Timur had online classes during the corona virus pandemic agreed to take part in the interview via Microsoft teams. During this stage, each teacher answered the questions individually and voluntarily on Microsoft Teams in order to prevent any virus infection. All of these participants responses were recorded in the application after the researcher explained the objective of the study.

Data Analysis

The technique of data analysis was conducted following the guidelines of the qualitative data analysis that includes stage data reduction, data display, and conclusion drawing, as presented by Milles & Huberman (1992).

FINDINGS AND DISCUSSION

Findings

The importance of teacher's readiness in teaching English with sufficient digital competence during and after Pandemic Covid-19 at Universitas Terbuka

To answer the first question regarding the importance of teacher's readiness in teaching English with sufficient digital competence, a questionnaire and interview was used for data collection. The following data from questionnaire shows the level of technological competence that teachers had while using Moodle. In connection with the teacher's experience of using Moodle as a platform to support distance learning programs, the

questions were given to reveal the technological competence that students had during their teaching experience at UT, both before and during Covid -19 outbreak.

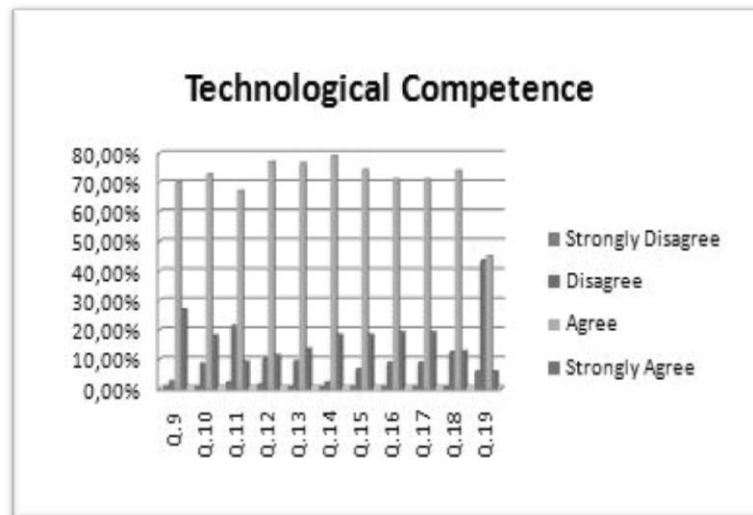


Figure 1: The teachers' answers related to Technological Competence

This figure shows the experience of a teacher using Moodle as a platform provided by UT to facilitate distance learning programs. It essentially informs us of the excellent learning system provided by UT before the Covid19 pandemic spread. That's because about 3 percent of the 4 percent of teachers clearly agree that the learning system is already good. First, 63.99% of teachers agree to have easy access to discussion forums, and 79.82% prefer to choose and agree to have easy access to online chat rooms. Second, 60.27% say they are actively using instant messaging with tutors and friends, and 79.96% agree that the Moodle platform layout is good-structured and easy to navigate. Third, 74.56% of teachers agree that online exercises and quizzes in Moodle have helped. Fourth, 74.06% of teachers reported that they used their previous skills when checking assignments. Then it was helpful to download or read the resources for the classes written online from Moodle. 76.24% agree with this point. Fifth, 77.01% agree that the material is easily accessible in the form of audio and video files. 68.73% agree that they are constantly informed about course information, not only from their instructors, but also about department updates such as schedules, new learning resource releases, and rating changes. Going forward, they agreed that learning about Moodle as an online platform was quick and reliable, with 73.04% reaching this statement. After that, 44.53% said they did not agree to video conferencing on the Moodle platform, and 40.15% agreed that video conferencing was used to support learning practices.

Furthermore, virtual interviews were conducted through Microsoft Teams application and the results obtained were transcribed in written form. In order to gather qualitative result of the study, all the responses to the questions were recorded, transcribed, and analyzed

addressing the concern of teachers in the digital competence especially in technological dimension.

The awareness of new digital devices and online services in distance learning: In dealing with the existence of new digital devices and online services in distance learning in this pandemic era, most of teachers reported that they need to develop, strengthen, and complement their skills of new teaching materials. They believe that it would contribute to their teaching careers since the new digital technologies can enhance innovative teaching placement experience for the future teaching practices.

“I am very grateful for the development of digital equipment that is very sophisticated at this time. Remote learning during this pandemic requires every teacher and student to master various applications such as WhatsApp, Moodle, Zoom meeting, Google classroom, Google meets, Microsoft Teams, Edmodo, etc.”

In addition, One of students mentioned that the new applications and platforms have made learning easier for students particularly who live in remote area.

“As a student who live in remote area, I was greatly helped by applications that do not require a lot of internet quota to access and make it easier for them to contact their teachers if there is material that they do not understand”

The students agree that their teachers has provided technology support to develop students' digital literacy and built up their skill using existing institutional platform, called Moodle. Furthermore, integrating the use of Information and Communication technologies (ICT) into the teaching and learning become a basic pillar in the preparation of prospective teachers (Maqbulin, 2020).

The description of teaching condition during and after pandemic Covid-19: In terms of teaching condition during and after pandemic Covid-19, some teachers that used to teach online at Universitas Terbuka (UT) did not make any changes to their teaching performance since UT has carrying out online tutorial for a long time. Khatoony & Maeda (2020) found that the adaptation of technology has positive beliefs and quite fruitful to decrease the distance between student and their teachers. This is justified by statements from several students who experience various difficulties both in online learning, thesis guidance, and carrying out practical lectures. One of teachers described the significant changes in education system affected by pandemic Covid-19 has explored them to the challenges and opportunity to the virtual environment.

“This pandemic has triggered changes in teaching activities. In such a short period of time, campuses were forced to implement virtual teaching experience. Although efforts have been made to the maximum, this condition has also resulted in a number of problems experienced by both lecturers and students.”

Moreover, some students reported that:

“Personally, I experienced various problems in distance learning. Limited learning equipment in the form of laptops and smartphones causes difficulties in delivering and receiving learning materials. Frequent signal interruptions and limited internet quota also hinder the process of sending assignments to online tutorial classes.”

“Long distance lectures that have been going on for quite a long time also cause boredom experienced by teachers and students. For various reasons, we have low motivation to read material, do assignments, and attend virtual meetings. This causes learning to be not optimal so that learning outcomes are quite low.”

Sufficient knowledge and strategies for assessing the validity of the information: Teachers were also asked on their knowledge of relevant search engines, self-service solutions, storage possibilities, and strategies for assessing the validity of the information. This statement in line with Khatoony & Maeda (2020) who concluded that every teacher is suggested to do their best to enhance students' performance by using information technology in absence of schools during the pandemic Covid-19. Furthermore, it was found that teachers in this study were typically strong professions at information. They had adequate ability to identify the suitable materials to be shared to students.

“Being updated and keeping in touch with internet is a valuable tool to help us find desirable websites. I prefer to use Sweet Search since it can direct us to relevant websites that have been approved by a group of researchers and scientists. It is best used because it provides safe results as well.”

In addition, the critical evaluation on the security, availability, and legality when content is stored was carefully considered by the teachers.

“I always consider very carefully the author and the website's credibility and how old the information is. I should organize and store those materials safely and accessible in the most appropriate format such as; jpeg, pdf, PNG, docx, rtf, etc.”

The students were also confirmed that their teachers always remind them to evaluate digital information when sent and received.

“My teacher often warns me that it is crucial for students to understand internet as a resource where the validity of information is necessarily verified. That is why I always checking the rules to be accepted in order to use an online service or checking if I have the right to use any photos from internet.”

The ability to identify and analyze digital information: a competent instructor must be able to use his knowledge through application in teaching practice. (Varvel, 2007). Regarding the capability to identify, locate, retrieve, store, organize, and analyze digital information, the teachers mentioned that the information literacy is a must in using digital technology safely. It enables them to recognize the information needed.

“I always strengthen my digital competence on which domain first needs a push. I read a lot about information literacy because in teaching I need to solve a concrete and practical problems. For example, my students often face difficulties in accessing the video or audio I shared on the online classroom. So, by only share a link of my google drive, my students can access the video or audio easily.”

Another teacher stated that she introduced various types of digital media to support the delivery of material.

“In order to achieve the learning objectives, I also direct students to get to know various kinds of digital media that are available and accessible for students all the time. The information available can be in the form of text, video, graphics, audio, and others.”

Solving digital problems and exploring new ways to take advantage of technology during and after pandemic Covid-19: Technology has a great potential to enhance teaching processes. Al Awidi & Fayiz (2017) argued that teachers need to know more than the core subjects to meet the new demands. Teachers should be able to acquire the technical and pedagogical skills to integrate digital technology effectively.

“I personally marveled on the students' proficiency at mastering technology. Indirectly, this is a big challenge for me to increase my knowledge of the latest technology by reading articles, watching videos, and consulting with friends who are experts in technology.”

However, the teacher also mentioned that there were still some students who had problems sending assignments.

“I've encountered several students who reported having difficulty submitting assignments that were too large to upload. At that time, I advised students to compress the file into zip format and it worked”

Communicating, collaborating, and participating in virtual teams and networks during and after pandemic Covid-19: The best practices recommended for developing content in distance learning are the combination of collaborative activities which has corresponding

rubrics detailing criteria for interaction and engagement (Lestyanawati, R & Arif W, 2020)). Teacher believed that using digital technology can be very effective in enhancing the quality of distance learning. One teacher honestly admitted that before the covid-19 pandemic, he was not very good at communicating and joining online meetings. However, this distance learning situation encouraged him to venture into joining online meetings couple of times.

“I have only known many things about online meetings since this pandemic, in the past I only communicated online via video calls. However, currently I have used the Zoom meeting app and Google Meet several times.”

One teacher added that he was used to participating in webinars from home and abroad.

“Since this pandemic, I have also joined several webinars at both national and international levels. I feel very fortunate to be able to participate in the webinar organized by the British Council in UK live. This is a matter of pride for me and gives me very useful knowledge, especially related to online learning.”

Tutor's readiness in online learning during and after Pandemic Covid-19 at Universitas Terbuka

In order to answer the readiness of tutors in online learning during and after Pandemic Covid-19, researchers prepared 5 interview items to 10 students who were selected randomly related to the readiness of their tutors via telephone. Pandemic Covid-19 has replaced all academic activities and face-to-face interview is not possible. Moreover, Mathers, et. al (2000) state that the telephone interview can be very effective and economical because the respondents to be interviewed are widely geographical distributed.

The researchers then analyzed the Strength, Weakness, Opportunity, and Threat (SWOT) on teacher's readiness in digital competences (Ommani, A.R.,2011). It can be seen in the following table:

Table 1: SWOT Analysis on Teacher's readiness in online learning

Internal Factors	Strengths (S)	Weaknesses (W)
Technological Competence	1) Teachers are ready in using technology such as; word processor, spreadsheets, presentations, email, databases, search engine, etc.	1) Only few teachers were qualified in creating web page design.
	2) The discussion forum can be accessed easily by teachers.	2) The notification of students' activities or student's message are rarely informed directly to the teacher's email, so that the teachers are often responded it late.
	3) Instant message is actively used by teachers to motivate students and give an alert about course information.	3) Only a few students responded the teacher's messages.
Cognitive Dimension	1) The learning goals and learning activities are always explained to the Tuton participants with principles or theories given in each session.	1) The questions in discussion forum are not touch up student's critical thinking
	2) The opinion is expressed in a clear and concise manner.	-
Ethical Dimension	1) The sources are provided when teachers giving answers.	-
	2) The reasons of every low grades are always explained	-
	3) The rude sentences are never stated to students	-
	4) The writing is always be read carefully before sending it to students.	-
External Factors	Opportunity (O)	
	1) The teachers of UT are qualified to teach online anywhere and get benefit to earn more income.	
	2) UT indirectly helps teachers from remote area improve their digital skills through teachers recruitment from all over Indonesia.	
	3) The teachers of UT can help their homebase institution become an IT-based campus.	
	4) UT is able to facilitate the online learning all over the world	
	Strategies upon Opportunity (SO)	Strategies upon Weakness (SW)
	The qualified teachers who have good skills in online teaching are needed in various institutions. Moreover in pandemic situation, teachers will also save on transportation costs, time spent getting to and from work, buying lunch and other work-related expenses.	Teachers become more active in seeking teaching opportunities including opportunities with international schools, government programs, universities, and language colleges in all over Indonesia.
	Limited training opportunities in online teaching and mastering digital skills in remote areas make teachers indirectly improve their digital competences through online teaching at UT	Government might collaborate with village officials to provide free internet network and conduct short course related to distance learning
	Threats (T)	Strategies Upon Threats
	The sudden changes in teaching during the covid-19 pandemic, reveals difficulties for face-to-face teachers who are not able to teach through Webinar Tutorial (TuWeb).	Providing frequent workshops could be done to aid the face-to-face teachers shaping their digital competence become more updated and creative.

The analysis above proved that teachers of UT are qualified enough to integrate ICT in their daily teaching and replace their traditional methods with the modern tools and facilities. The topics of the interview are including teacher's competences in using technology to support the online teaching and learning in Pandemic situation, teacher's skills integrating technology into curriculum, teacher's ability in managing and controlling students learning in a technology-enriched classroom, teacher's capability in time management, and teacher's

supporting the interaction among students and collaborative activity as a means of teaching online.

Discussion

The key factors in shaping teacher ICT competency in higher education are the teacher's readiness and modern infrastructure (Baharuldin et al, 2019). Therefore, the standard of competent teachers in integrating ICT in the classroom asks teacher to facilitate and inspire student to learn, design, and develop digital learning. It is hoped that students know well the way to work and learn in the digital age, promote, and model responsible digital communities.

Regarding the student's responses to the item given related to readiness of their teachers, it could be concluded that their teachers exhibited a high level of readiness. Most of the teachers were competent in using learning management system. Teachers were familiar with e-mail, word processing software, blog, online quizzes, and online discussions. Furthermore, students felt comfortable communicating online with their teachers and they can convey the message writing easily. Most of the teachers are able to manage the time well in a technology-enriched classroom and tends to plan ahead in technology based teaching. The interaction among students and collaborative activity as a means of teaching and learning were also fully supported by the teachers. The digital technology can be successfully implemented if the teachers have a great readiness and willingness to adopt it.

However, there were also some students who complained about the lateness of teacher's responses towards the students' assignments. This problem quite frustrating and annoying for students. Al Awidi, H & Fayiz, A (2017) emphasize that teacher need to acquire all the technical and pedagogical skills to integrate digital technology effectively and efficiently. The components of teacher's readiness are teacher's awareness, knowledge of use, perceptions, and attitudes toward their capabilities and skills in implementing technology as well as gaining experience in the use of educational technology (Msila, V, 2015). In short, it can be said that most of the teachers were ready both in technical and pedagogical dimensions of readiness to integrate digital technology in online classroom because they are used to use Moodle as the learning management system long time before the coronavirus pandemic spread world wide.

In addition, the deepen analysis in Focus Group discussion reveals some teachers exposed that they got a problem with the system while during the pandemic happen. The old-age teachers were asking them to teach the way to use the latest features of Microsoft

software. Most of the old teachers were not common with the latest online learning software used by UT in conducting online learning. Most teachers complained to the system itself. Previously, teachers had a partial face-to-face class each semester, but today, all teachers had to teach through Webinar Tutorial or known as TuWeb.

The function of teacher as a guide and facilitator in the learning activity is crucial. Teachers are one of the important factors in students' high achievement. In short, teachers of today should always be ready and well- equipped with ICT competencies and positive attitude to provide ICT-based learning opportunities for students.

CONCLUSION

In summary, the results generally show that many teachers are willing to teach online. Updating knowledge of technological development is an important need to guide students through a pandemic. In addition, by adapting the potential of technology in online classrooms during and after the Covid19 pandemic, students can assess the effectiveness of information and help solve digital problems. Teachers are using new digital technologies to enhance their innovative educational internship experience for future classroom practice. All online tutors are strongly encouraged to maintain their commitment and actively engage in all aspects of online education by moderating their classes. Everything a student needs in an online class needs to be well prepared and the best materials come from a variety of high quality reading sources.

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